DOCUMENT RESUME

ED 216 050 TM 820 269

AUTHOR Kalk, John Michael; And Others
TITLE A Closer Look at School Cutoff Dates and Achievement.
INSTITUTION Education Commission of the States, Denver, Colo. National Assessment of Educational Progress.
SPONS AGENCY National Inst. of Education (ED), Washington, DC.
REPORT NO NAEP-AY-AA-52
PUB DATE Feb 82
GRANT NIE-G-80-0003
NOTE 11p.
AVAILABLE FROM National Assessment of Educational Progress 1860 Lincoln St., Suite 700, Denver, Co 80295 ($1.00).

EDRS PRICE MF01/PC01 Plus Postage.
DESCRIPTORS *Academic Achievement; Academic Failure; Elementary Secondary Education; Grade 4; Grade 8; Grade 11; Learning Readiness; *School Entrance Age; *School Readiness; *Sex Differences; *White Students
IDENTIFIERS *National Assessment of Educational Progress

ABSTRACT

National Assessment of Educational Progress data in reading, mathematics, and science for Caucasian children were analyzed. Using regression analysis for three age groups, nine, thirteen, and seventeen year olds, a trend analysis was plotted. The changing achievement relationships between these students relative to their classmates and their age of entry into first grade were studied. The data indicated superior performance for classes with an older combined mean age. The age of entry into first grade proved to be a critical factor in achievement levels. The authors suggest changing entrance cutoff dates from December, January, or February to September, October or November. Since achievement varies between boys and girls, separate cutoff dates were proposed. Clinical screening of students is recommended for critical male and female groups. Teachers' awareness of high risk ages might lead to multi-level instruction. Inadequate readiness is a potentially serious threat to a child's academic career. However, children whose entrance is delayed, although they might have been able to cope, may cause problems as restless high school seniors. Primary type of information provided by the report: Results (Secondary Analysis) (Interpretation). (DWH)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED216050

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
☒ This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

A CLOSER LOOK AT SCHOOL CUTOFF DATES AND ACHIEVEMENT

No. AY-AA-52

by

John Michael Kalk
National Assessment of Educational Progress

Philip Langer
University of Colorado

Donald T. Searls
National Assessment of Educational Progress

"PERMISSION TO REPRODUCE THIS MATERIAL HAS BEEN GRANTED BY
T. Pratt
TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)."

February 1982

National Assessment of Educational Progress
Education Commission of the States
Suite 700
1860 Lincoln Street
Denver, Colorado 80295

TM 820 260

When is a child ready for the first grade? Parents, teachers and educators have always been concerned about the physical, mental, social and emotional factors that determine a child's readiness for entering first grade. But school budgets are often inadequate for the task of examining every entering student, and educators have generally adopted an arbitrary age criterion as the normal admission policy. With a simple age cutoff, school boards have been able to minimize clinical screening, using it only for the small group of students seeking early entry. There is no clear agreement among educators, however, about optimal cutoff dates, so there is a range of five months in the entrance requirements of the nation's school districts.

The simple age criterion has led to some research on optimal ages for entering first grade, but more has been done on the individual attributes necessary for successful early entry into school. A number of studies have compared normally entering children with a rather unique group entering first grade below the minimum age specified by the cutoff date (Hedges, 1977). Results have shown that many of these early entrants demonstrated equal or slightly superior academic performance. Since these students are often seeking early entrance precisely because they are academically superior, the findings cannot be generalized to the whole population of normal entering children, and especially the younger ones. Previous research has not answered the question of how early is too early. Indeed, it appears that past attention has been unduly restricted to these younger-than-normal children -- the exceptions to the cutoff age -- at the expense of those normally entering first graders who are the youngest in the class.

The age difference between the youngest and the oldest normal entrant to first grade is startlingly large, when looked at as a percentage of their whole lives. In a district with a January 1st cutoff date, the youngest normal entrant is 5 years and 8 months old, or 68 months, while the oldest is 6 years and 7 months, or 79 months. The oldest has been alive 16% longer than the younger; he

or she has used language for roughly 47 months as opposed to 36 months, a 31% difference. This is a very considerable difference in life experience, and it would not be surprising if it put the youngest normal entrants at a substantial disadvantage when compared with the oldest normals.

There have been a few studies comparing the younger and older groups of normally entering children, but these have not received much attention. These studies have found that throughout elementary school, younger normals receive lower grades, are rejected more often by their peers, have more negative attitudes toward school, have higher grade retention (i.e., failure rates) and score lower on achievement tests in mathematics, science and reading (Hedges, 1977; Weinstein, 1968-69). Now, an analysis of achievement data collected by the National Assessment of Educational Progress (NAEP) has revealed important findings about the failure rate for the youngest nonminority normals.

Procedures

A complete description of the study upon which this paper is based appears in Trends in Achievement as a Function of Age of Admission, by Kalk, Langer and Searls (1981), available from the National Assessment of Educational Progress.

NAEP data in reading, mathematics and science were analyzed for Caucasian (nonminority) students, using a regression analysis. The three age groups selected were 9-, 13- and 17-year-olds, representing the modal grades of 4th, 8th and 11th. This permitted a trend analysis from elementary to high school with a sample size of about 30,000 students at each age.

The criterion variable in this study was defined as the ratio of correct exercises to attempted exercises (i.e., achievement score) for each student. The scores were converted to percentiles, and an inverse (probit) transformation was applied to create a symmetrical distribution, to meet the normality assumptions of the multiple regression analysis. The normalization provided a common basis for comparing different age groups.

The predictor variables included in this study were (a) chronological age, (b) relative age, (c) sex, (d) parental education, (e) home environment, (f) region and (g) type of community. Chronological age was derived directly from the birth month of each student. The rela-

tive age variable was derived from both the birthdate and the school district's cutoff date for entrance to first grade,[1] ordering students from oldest to youngest across the nation's classrooms. Whenever previous research had used students from a single district, chronological and relative age were identical. In this national sample, with differing state cutoff dates, relative age becomes a common scaling measure. In addition, a class age variable was created, based on the average age of students in the classroom. This variable was dichotomized. An "old" category was derived, grouping students from states with September, October and November cutoffs. The "young" group included states with December, January or February cutoffs. This variable provided control over the potential confusion caused by the multiple cutoff dates. The region variable followed NAEP categorization of states into Northeast, Southeast, Central and West. Parental education and type of community were ordered into three point scales ranging from high to low.

Findings

For 9-year-olds, both class age and relative age were significant. The regression line was negatively sloped; that is, older children performed better. The absolute achievement difference, though, between the youngest and the oldest children was about one-fifth of a standard deviation or about five percentiles. The data indicated superior performance for classes with an older combined mean age ("old") as compared with classes with a younger mean age ("young"). There was no interaction between class age and relative age at any of the three ages.

The achievement findings were further extended by an analysis of grade retention rates, which demonstrated that a very large proportion of the youngest students are retained by being held back a year before entering first grade or at some point in their schooling. A three-way

---

[1]However, in this procedure students would be incorrectly classified if they had moved from a school district with a different cutoff date. Some of these classification errors were removed for the 13- and 17-year-olds. Since cutoff dates were assigned for an entire state, students were subsequently rejected when the state cutoff date was different as compared with the state where the student resided at age 9 and/or 13. The remaining number of incorrectly classified students is probably fairly small.

categorization of relative age, class age and sex was created for students who should have been in the modal grade but who had been retained one year. Table 1 contains the percentages of retained 9-year-old students nationwide, broken down by month of birth and sex, and also by the "old" and "young" classroom categorizations. Again, an "old" classroom is one where the school system uses a September, October or November cutoff. The mean age of such a classroom would be from one-to-five months older than for a system using a December, January or February cutoff. Months appear in the table not as the student's birth month, but as the number of months from the birth month to the cutoff. Thus, in a system with a September 1st cutoff, students born in September would be the oldest in their grade and would be categorized as Month 1 students, while students born in August would be categorized as Month 12 students. For a January cutoff, students born in January would be the oldest (Month 1), while students born in December would be the youngest (Month 12).

In classrooms with an "old" mean age, the grade retention rate for the very youngest (Month 12) boys is 26.5%. Rates for Months 11 through 9 decline from 20% to 17%, and in Month 8 the rate stabilizes at 10% to 11%. In classrooms with a young mean age, the retention rate for the very youngest boys is an astonishing 47%, dropping to 39% for Month 11, 28% for Month 10 and not stabilizing until Month 6. These relationships are graphically displayed in Figure 1.

The pattern of grade retention for girls is not nearly so dramatic. In "old" mean age classrooms the retention rate for the youngest month is 13.9% and stabilizes by Month 8 at 6% to 8%. In classrooms with a young mean age, the grade retention rate for the very youngest girls is 32% in Month 12, 15 percentage points lower than the boys. In Month 11 the rate drops to 25% and stabilizes earlier by Month 8 at 6% to 8%.

For achievement among 13-year-olds,[2] relative age was still significant, but not class age. The slope of the regression line was still negative, but flatter. That is, older children did better, but not nearly as well as 9-year-olds. For class age, the "old" group (i.e., September, October and November) had a higher but statistically nonsignificant advantage. Hence, the relative age difference decreased, but remained significant, while the class age difference also remained, but was

---

[2]The analysis of retention rates for 13-year-olds, except for slightly larger rates, replicated the 9-year-old results.

TABLE 1

Percentages of 9-Year-Olds Who Belong in Fourth Grade But Have Been Retained One Grade

Relative Age (Months to Cutoff Date)	Class Age				Sex		
	Old (Sep., Oct. or Nov. cutoff)		Young (Dec., Jan. or Feb. cutoff)		Male	Female	Total
	Sex		Sex				
	Male	Female	Male	Female			
Oldest 1	0.00%*	0.00%*	10.11%	6.98%	10.11%	6.98%	8.61%
2	0.00*	0.00*	9.28	5.97	9.28	5.97	7.70
3	11.04*	2.48*	9.93	4.81	9.86	4.65	7.25
4	11.27	7.66	9.54	6.97	10.02	7.12	8.56
5	10.62	5.70	13.04	6.87	12.20	6.41	9.33
6	10.67	6.63	11.39	6.87	11.13	6.81	8.99
7	10.81	5.60	14.68	8.77	13.18	7.62	10.45
8	10.10	8.17	17.69	7.72	14.75	7.82	11.19
9	17.42	9.17	21.04	10.98	19.65	10.35	15.08
10	19.51	11.01	28.06	15.41	24.64	13.69	19.31
11	20.62	10.64	39.34	24.61	31.51	19.38	25.48
12 Youngest	26.50	13.94	47.23	32.22	37.78	23.65	30.68
Total	15.92	8.93	19.71	11.77	18.44	10.83	14.67

* Due to sampling procedures, this cell contained no students or an insufficient number of students, resulting in unreliable estimates.

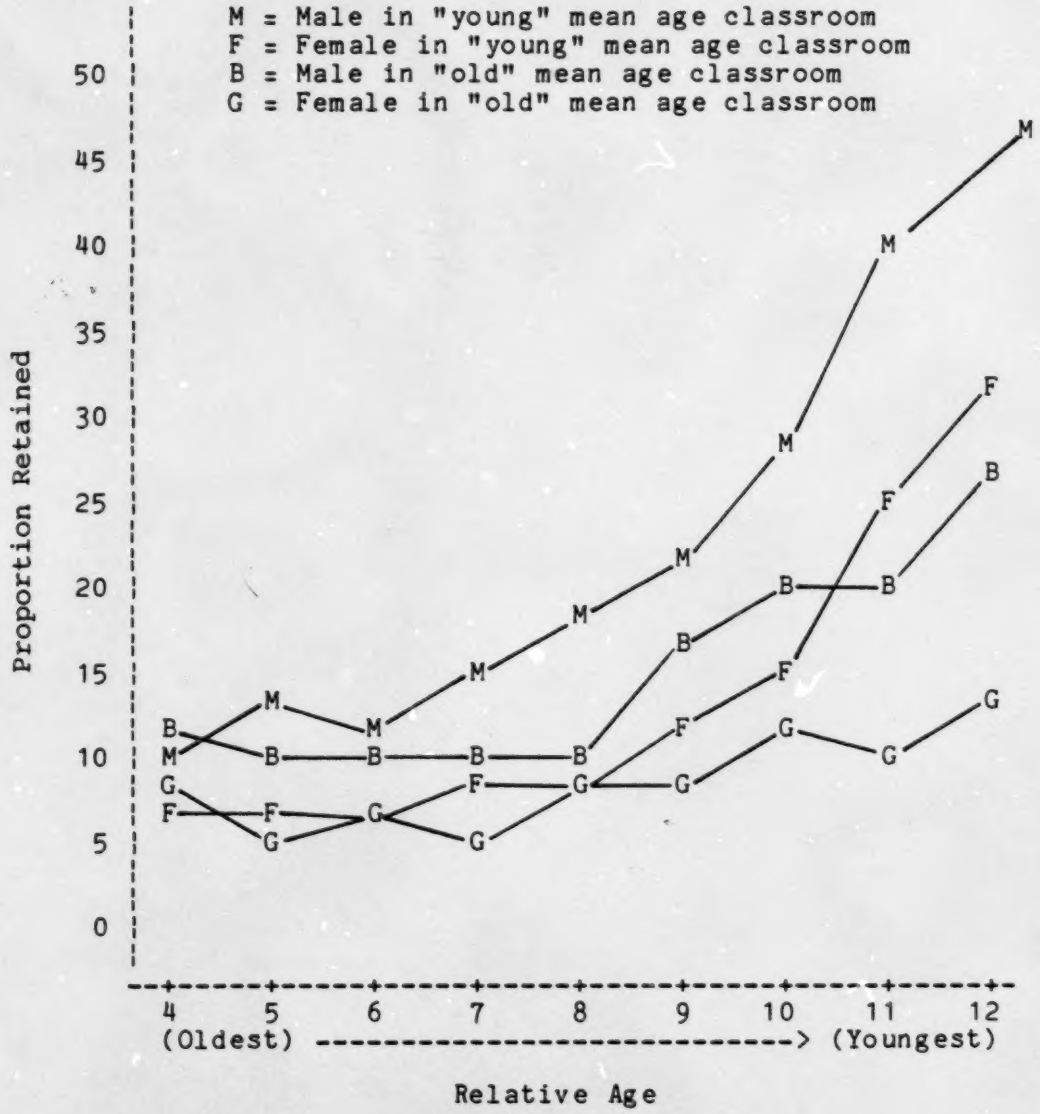

Figure 1: Percentages of 9-Year-Olds Who Belong in Fourth Grade But Have Been Retained One Grade, Categorized by the Relative Age, Class Age and Sex Variables

---

nonsignificant. The tendency of the class age to be less important was attributed to several factors: (a) at age 13 an age difference of one or more months is not as critical as at age 9; (b) younger children might have learned to cope; or (c) there may have been further attenuation of the least able group, that is, younger males.

For 17-year-olds, the slope of the regression line was flat. Neither relative age nor class age was significant. The attenuation could be attributed to: (a) teacher intervention, (b) remedial instruction, (c) student coping and/or (d) student retention. It is likely that all four variables are critical.

For both "young" and "old" groups, the individual content areas tended to parallel the combined data findngs. Reading was a possible exception. Among 17-year-olds, the younger students did better, but the difference was not statistically significant. In addition, higher achievement was correlated with higher parental education and urbanization. Among regions, the Northeast had statistically significant higher achievement, and the Southeast lower. Males were statistically superior at all three ages in math and science while females were statistically superior in reading for all three ages.

It appears that the problem of retention of young normal students is critical at earlier grades. What are the solutions? Several measures would be helpful. The first sensible solution would be to change December, January and February cutoffs to September, October or November. This would not entirely solve the problem, but it would significantly reduce those at risk among the boys and tend to eliminate it for the girls. A further step would be to introduce separate cutoff dates for boys and girls. Since the data clearly show about a four-month maturation difference in the ability of boys and girls to adjust to school, a July or August 1st cutoff should work well for boys and an October 1st for girls.

There will be resistance to this suggestion, of course. Parents will fear and dislike the stigma of "unequal treatment" for males and females. Unequal, or rather, different treatment may be unavoidable to optimally solve this problem. If we are unwilling to acknowledge the need for different treatment in entrance ages, we will have to face it in another form. That would be to clinically screen high risk students. While screening would be desirable for the very youngest girls, it is most crucial for the boys, and not just for the youngest one or two months, but for the youngest third or even half. Clinical screening is suggested for the following groups: (a) for districts with December, January or February cutoffs, males in the youngest half of the class and females in the youngest quarter, and (b) for districts with September, October or November cutoffs, males in the youngest third of the class. Signs of inadequate readiness in children of these groups pose potentially serious threats to the child's academic career and suggest delaying entrance until the following school year.

In addition to later cutoff dates, separate cutoff dates for boys and girls and clinical screening for the critical male and female age groups, a fourth measure would be to increase teacher awareness of the high risk ages. Individual and self-paced instruction may provide a partial solution. Or, it might be feasible to separate first grade instruction into two levels. Miller and Norris (1967) studied an elementary school where each student, upon entering school, was placed in 1 of 11 instructional levels based upon teacher recommendation and reading achievement scores. These 11 levels corresponed to grades 1-3. This organizational system enhanced reading instruction and individual pacing of progress to minimize failure and grade competition. Since students progressed through these 11 levels at different rates, they entered 4th grade at different times. When young and old groups were compared on achievement tests, the differences were not statistically significant. These results are promising and should be replicated.

Of these four approaches to reduce the failure rate of young normal entrants, two will cost more: clinical screening and multi-level instruction. The other two will be unpopular: earlier cutoffs and separate cutoffs for boys and girls. Although teachers generally favor earlier cutoffs to delay the entrance of unready children who require a disproportionate share of their time, parents generally want their children in school sooner, for many reasons, which may not necessarily reflect educational values. These range from a view of school as an inexpensive babysitting facility to pride in reaching this parental milestone. They also have a legitimate concern, of course, to see their child started on the educational road of life as soon as feasible, especially if they anticipate additional professional training after school and college. Furthermore, delayed entrance for those who might have coped may mean more restiveness among high school seniors who are ready at age 18 to enter work and marriage and who feel trapped in another year of school. These competing needs must be weighed against each other and against the money available for clinical screening and multi-level instruction.

REFERENCES

Kalk, J. M. Trends in Achievement as a Function of Age of Admission. (Doctoral dissertation, University of Colorado, 1981). Dissertation Abstracts International, 1981, 31, 2055A (University Microfilms No. 81-3200).

Kalk, J. M., Langer, P. & Searls, D. Trends in Achievement as a Function of Age of Admission (Report no. AY-AA-51). Denver, Colorado: National Assessment of Educational Progress, Education Commission of the States, December 1981.

Hedges, W. D. At what age should children enter first grade? Ann Arbor, Michigan: University Microfilms International, 1977.

Miller, W., & Norris, R. C. Entrance age and school success. Journal of School Psychology, 1967, 6, 47-60.

Weinstein, L. School entrance age and adjustment. Journal of School Psychology, 1968-69, 7, 20-28.